



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/647,910	12/07/2000	Christine Gauss	113737.5	5985

41068 7590 10/19/2004  
BUCHANAN INGERSOLL PC  
1835 MARKET STREET, 14TH FLOOR  
PHILADELPHIA, PA 19103-2985

EXAMINER

BARTON, JEFFREY THOMAS

ART UNIT PAPER NUMBER

1753

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/647,910

Applicant(s)

GAUSS ET AL.

Examiner

Jeffrey T. Barton

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20010103</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: on page 5 at line 18, it is stated that steel capillaries are preferred because of their high resistance.

Perhaps "durability" was intended rather than "resistance."

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

Art Unit: 1753

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Togawa et al in view of Carr et al (Citation AP on 1449).

Relevant to claim 1, Togawa et al disclose a sampling apparatus for removing a plurality of samples from a support material (Figures 1 and 2), comprising a separation tool (8) for removing the samples, arranged on a holding device (Z-direction driver 12 holds the tool) and provided with an actuating means (Z-direction driver 12; X and Y direction shafts and drivers 14, 16, 18, and 20) by which the tools can be controlled and actuated. (Column 2, lines 35-51)

Relevant to claim 2, Togawa et al disclose the separation tools being tubular punching tools, movable axially, with an actuator at one end and the punching edge at the other. (Column 2, lines 52-59)

Relevant to claim 8, Togawa et al disclose the holding device being connected to an adjusting device (X and Y direction shafts and drivers 14, 16, 18, and 20) for positioning the holding device in an x-y reference plane. (Column 2, lines 35-51)

Relevant to claim 9, Togawa et al disclose an imager and control device (30, 32, 34, 36) wherein the imager supplies image data of the support material to the control device, which is arranged to generate target coordinates for controlling the adjusting device. (Column 3, lines 4-28)

Togawa et al do not explicitly disclose a plurality of separation tools (Claim 1), any particular punching tool diameter (Claim 3), any particular type of actuating means (Claim 4), or the plurality of tools being arranged in a matrix of at least one row (Claim 5), with the matrix being in a microtiter plate format (Claim 6), or each separation tool being connected by a guide means to the actuating means with each guide having a connecting opening whereby the separation tool is connected to a pressure system. (Claim 7)

Carr et al disclose a similar device for removing cylindrical plugs from a polymeric material, comprising a plurality of separation tools. (Punches 10, Figure 2)

Relevant to claim 4, Carr et al disclose actuation by pneumatic cylinders. (Page 5, lines 8-14; Figure 3)

Relevant to claim 5, Carr et al disclose disposition of the tools in a one-row matrix. (Figure 2)

Relevant to claim 7, Carr et al disclose each separation tool (10) being connected by a guide means (18) to the actuating means (19) with each guide having a connecting opening (21 and 22) whereby the separation tool is connected to a pressure system. (Figure 3; Page 5, line 15 - Page 6, line 9)

Art Unit: 1753

Togawa et al and Carr et al are analogous art in that both deal with removal of cylindrical portions of polymer material by use of a hollow cylindrical punch.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Togawa et al by providing a plurality of separation tools on the holding device, as taught by Carr et al, because it would increase device efficiency.

Relevant to claim 3, it would also have been obvious to use separation tools with capillary dimensions, because Togawa did not specify any particular dimensions, and the desired tool diameter would be dictated by specifics of the separation (i.e. gel thickness, spot length, and band width)

Relevant to claim 4, it would also have been obvious to provide punches with pneumatic actuation as taught by Carr et al, because Togawa et al did not specify any preferred means of actuation, and use of pneumatic actuation allows construction of a compact device with convenient, reliable operation.

Relevant to claim 5, it would have been obvious to organize the separation tools in a row (1-dimensional matrix), as taught by Carr et al, because it would allow the elimination of 1 dimension of robotic movement (e.g. X or Y), simplifying device design, construction, and operation. It is also obvious that such an arrangement would prevent cross-contamination between gel lanes, provided the row of tools is perpendicular to the run direction.

Relevant to claim 6, it would also have been obvious to arrange the row of separation tools with the same spacing as that of a microtiter plate because it would

simplify sample transfer for subsequent analysis. (i.e. Many analyses are designed to draw samples from microtiter plates)

Relevant to claim 7, it would also have been obvious to one having ordinary skill in the art at the time the invention was made to provide a guide means to the separation tools, as taught by Carr et al, because it would provide precision in location of the punch upon actuation. Additionally, it would have been obvious to provide pressure system inlets to the pneumatic cylinder through the guide, as also taught by Carr, because it would allow simple and compact construction. (i.e. guide also serves as cylinder housing the actuator, resulting in fewer parts)

6. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Togawa et al in view of Carr et al (Citation AP on 1449).

Relevant to claim 10, Togawa et al disclose a method for cutting samples from a support material and transferring the samples to a target substrate (Container 24, Figure 2B), said method comprising cutting the samples successively in time using the sample taking apparatus and transferring the samples to a target substrate (Column 2, line 60 - Column 3, line 3)

Relevant to claim 11, Togawa et al disclose the method comprising steps of moving the apparatus into position, actuating the separation tool, moving the tool to the target substrate, and transferring the sample to the substrate. (Column 2, line 52 - Column 3, line 3)

Relevant to claim 12, Togawa et al disclose target positions being obtained from image data. (Column 3, lines 4-28)

Relevant to claim 13, Togawa et al disclose pneumatic actuation. (Column 2, line 65 - Column 3, line 3)

Togawa et al do not explicitly disclose the device comprising a plurality of separation tools (Claim 10), or the method comprising moving a plurality of separation tools into position over a plurality of samples, collecting the samples, and transferring them to the target substrate. (Claim 11)

Carr et al disclose a similar device for removing cylindrical plugs from a polymeric material and a method for using it; the device comprises a plurality of separation tools. (Punches 10, Figure 2)

Relevant to claim 11, Carr et al disclose independent control of the separation tools. (Page 6, lines 18-28)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Togawa et al by providing a modified device incorporating a plurality of independently-controlled separation tools, as taught by Carr et al, because it would increase device efficiency.

Relevant to claim 11, it would also have been obvious to modify this method by moving the plurality of separation tools to desired positions to obtain a plurality of samples for transfer to the target substrate, because it is simply the extension of the method of Togawa et al to the use of plural separation tools.



Art Unit: 1753

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Togawa et al and Carr et al as applied to claim 10 above, and further in view of either Anderson et al or Pelc et al. (Citation AL on 1449)

Togawa et al and Carr et al disclose a combined method as described above. In addition, Togawa et al disclose the support material being a separation gel and the samples being substance bands distributed therein. (Column 3, lines 4-60)

Neither Togawa et al nor Carr et al explicitly disclose transfer of the plugs to a microtiter plate.

Anderson et al disclose a device and method of removing plugs of samples from an electrophoresis gel and transferring them to a microtiter plate. (Column 26, line 41 - Column 27, line 21)

Pelc et al disclose a method of transferring viscous fluid from a selected location to a microtiter plate. (Column 15, line 36 - Column 16, line 45)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined method of Togawa et al and Carr et al by transferring the sample plugs to a microtiter plate, as taught by either Anderson et al or Pelc et al, because it provides a convenient vessel for further analysis of multiple samples. (i.e. numerous analytical methods are designed to take samples from such plates)

Art Unit: 1753

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Togawa et al and Carr et al as applied to claim 10 above, and further in view of Brun et al.

(Citation AM on 1449)

Togawa et al and Carr et al disclose a combined method as described above.

Neither Togawa et al nor Carr et al explicitly disclose using an underpressure to the separation tools prior to the transfer.

Brun et al disclose a method of removing cylindrical plugs of a gelatinous substance, in which they apply an underpressure prior to plug transfer. (Page 1, lines 124-129)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined method of Togawa et al and Carr et al by applying an underpressure to the separation tool prior to transfer, as taught by Brun et al, because it would help prevent premature loss of the plug. (i.e. prior to final positioning)

9. Claims 1-3, 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Togawa et al in view of Pelc et al (Citation AL on 1449).

Relevant to claim 1, Togawa et al disclose a sampling apparatus for removing a plurality of samples from a support material (Figures 1 and 2), comprising a separation tool (8) for removing the samples, arranged on a holding device (Z-direction driver 12 holds the tool) and provided with an actuating means (Z-direction driver 12; X and Y

Art Unit: 1753

direction shafts and drivers 14, 16, 18, and 20) by which the tools can be controlled and actuated. (Column 2, lines 35-51)

Relevant to claim 2, Togawa et al disclose the separation tools being tubular punching tools, movable axially, with an actuator at one end and the punching edge at the other. (Column 2, lines 52-59)

Relevant to claim 8, Togawa et al disclose the holding device being connected to an adjusting device (X and Y direction shafts and drivers 14, 16, 18, and 20) for positioning the holding device in an x-y reference plane. (Column 2, lines 35-51)

Relevant to claim 9, Togawa et al disclose an imager and control device (30, 32, 34, 36) wherein the imager supplies image data of the support material to the control device, which is arranged to generate target coordinates for controlling the adjusting device. (Column 3, lines 4-28)

Togawa et al do not explicitly disclose a plurality of separation tools (Claim 1), any particular punching tool diameter (Claim 3), or the plurality of tools being arranged in a matrix of at least one row (Claim 5), with the matrix being in a microtiter plate format. (Claim 6)

Pelc et al disclose a device suitable for removing samples of viscous liquids (such as some electrophoresis support materials; Column 2, lines 45-49), with a plurality of separation tools (Figure 7, microdispensers 212)

Relevant to claim 3, Pelc et al disclose this device having capillaries for removing the samples (Column 3, lines 11-17)

Relevant to claim 5, Pelc et al disclose the plurality of separation tools being arranged in a row (1D matrix) (Figure 7; column 14, lines 32-45)

Relevant to claim 6, Pelc et al disclose the plurality of tools arranged so that their ends form an array corresponding to a microtiter plate format. (Figure 7, microtiter plate of 111 and 112)

Togawa et al and Pelc et al are analogous art in that both deal with small-scale (i.e. milliliter or less) sample transfers to and from horizontally disposed containers and media, involving viscous materials.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Togawa et al by providing a plurality of separation tools on the holding device, as taught by Pelc et al, because it would increase device efficiency.

Relevant to claim 3, it would also have been obvious to use separation tools with capillary dimensions, as taught by Pelc et al, because Togawa did not specify any particular dimensions, and the desired tool diameter would be dictated by specifics of the separation (i.e. gel thickness, spot length, and band width)

Relevant to claim 5, it would have been obvious to organize the separation tools in a row (1-dimensional matrix), as taught by Pelc et al, because it would allow the elimination of 1 dimension of robotic movement (e.g. X or Y), simplifying device design, construction, and operation. It is also obvious that such an arrangement would prevent cross-contamination between gel lanes, provided the row of tools is perpendicular to the run direction.

Relevant to claim 6, it would also have been obvious to arrange the row of separation tools with the same spacing as that of a microtiter plate, as taught by Pelc et al, because it would simplify sample transfer for subsequent analysis.

10. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Togawa et al in view of Pelc et al (Citation AL on 1449).

Relevant to claim 10, Togawa et al disclose a method for cutting samples from a support material and transferring the samples to a target substrate (Container 24, Figure 2B), said method comprising cutting the samples successively in time using the sample taking apparatus and transferring the samples to a target substrate (Column 2, line 60 - Column 3, line 3)

Relevant to claim 11, Togawa et al disclose the method comprising steps of moving the apparatus into position, actuating the separation tool, moving the tool to the target substrate, and transferring the sample to the substrate. (Column 2, line 52 - Column 3, line 3)

Relevant to claim 12, Togawa et al disclose target positions being obtained from image data. (Column 3, lines 4-28)

Relevant to claim 13, Togawa et al disclose actuation by compressed air. (Column 2, line 65 - Column 3, line 3)

Relevant to claim 14, Togawa et al disclose the support material being a separation gel and the samples being substance bands distributed therein. (Column 3, lines 4-60)

Relevant to claim 15, Togawa et al disclose applying overpressure to effect sample transfer to the target substrate. (Column 2, line 65 - Column 3, line 3)

Togawa et al do not explicitly disclose the device comprising a plurality of separation tools (Claim 10), the method comprising moving a plurality of separation tools into position over a plurality of samples, collecting the samples, and transferring them to the target substrate (Claim 11), transferring samples to a microtiter plate (Claim 14), or applying an underpressure prior to plug transfer. (Claim 15)

Pelc et al disclose a device suitable for removing samples of viscous liquids (such as some electrophoresis support materials; Column 2, lines 45-49), and methods for its use, comprising a plurality of separation tools (Figure 7, microdispensers 212)

Relevant to claims 11 and 14, Pelc et al disclose moving the plurality of separation tools to position over desired samples, removing the samples, moving the tools to new positions over a target substrate (microtiter plate), and transferring the samples. (Column 15, line 36 - Column 16, line 45)

Relevant to claim 15, Pelc et al disclose removing samples while applying an underpressure to the capillary. (Column 15, lines 36-52)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Togawa et al by providing a modified device incorporating a plurality of independently-controlled separation tools, as taught by Pelc et al, because it would increase device efficiency.

Relevant to claims 11 and 14, it would also have been obvious to use the plurality of independently-controllable separation tools to remove a plurality of samples

by moving the tools sequentially into position for sample removal, taking the samples, moving the tools over target wells in a microtiter plate, and dispensing the sample, as taught by Pelc et al, because this would provide an efficient method of transferring a maximum number of samples for analysis in a minimum amount of time.

Relevant to claim 15, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Togawa et al by applying an underpressure prior to plug transfer, because it would help prevent unintended release of the sample prior to final positioning.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Jeffrey Barton, whose telephone number is (571) 272-1307. The examiner can normally be reached Monday-Friday from 8:30 am – 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached at (571) 272-1342. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 1753

you have questions on access to the Private PAIR system, contact the Electronic  
Business Center (EBC) at (866) 217-9197 (toll-free).

JTB

October 8, 2004



NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700